



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,750	03/15/2001	Huy Thanh Vo	303.723US1	4340

21186 7590 05/21/2004

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER

MAI, SON LUU

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,750

Applicant(s)

VO, HUY THANH

Examiner

Son L. Mai

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed 03-15-04 has been entered. Accordingly, claims 1-41 and 45-54 are pending in the application.

Drawings

2. The drawing to figure 6 filed 03-15-04 is acceptable.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 8-14, 15-18, 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Cowles (U.S. Patent 5,940,315).

Regarding claim 1, Cowles discloses a memory array (figure 2A), comprising:
a number of memory cells (not shown) having a first source/drain region and a second source/drain region and a gate region; a number of source lines (not shown) coupled to the first source/drain region of at least one memory cell; a number of bit lines (not shown) coupled to the second source/drain region of at least one a number of wordlines (30-33) coupled to the gate region of at least one memory cell; a strapping line (112) of lower resistance than the wordlines coupled to a single wordline in a single array (memory bank 100) wherein the strapping line bypasses only a portion in a middle

Art Unit: 2818

region between a first and second end of the single wordline, and wherein the strapping line is spaced apart from adjacent conductive structures by a distance greater than a wordline pitch (figure 2B shows that distance between strapping lines 112 and 113 is greater than a wordline pitch between wordlines 31 and 32); and at least two channels (at node 150 in figure 2A) connecting the strapping line to a first and second end of the portion of the single wordline.

Regarding claim 2, Cowles also teaches that the strapping line comprises metal (column 4, first paragraph).

Regarding claim 3, Cowles also teaches the strapping line metal comprises a refractory metal (column 4, first paragraph).

Regarding claim 4, Cowles teaches that the portion of the wordline bypassed by the strapping line comprises a first half of the memory cells coupled to the wordline (two middle memory arrays in figure 2A are considered as a first half of the memory cells).

Regarding claims 8-14, 15-18, 26-29, since the claims recite similar limitations as in claims 1-4, they are rejected on the same ground.

5. Claims 5-7, 19-25, 30-36, 37-41, 45-48, and 49-54 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,841,688 issued to Sukegawa et al. (hereinafter referred to as "Sukegawa").

Regarding claim 5, Sukegawa discloses in figures 5A-5C and related text, a memory array, comprising: a number of memory cells (not shown) having a first source/drain region and a second source/drain region and a gate region; a number of

Art Unit: 2818

source lines (not shown) coupled to the first source/drain region of at least one memory cell; a number of bit lines (not shown) coupled to the second source/drain region of at least one memory cell; a number of wordlines (372, 374 in figures 5A, 5B and 5C) coupled to the gate region of at least one memory cell; a plurality of separate strapping lines (500, 508, 502,...) of lower resistance than the wordlines coupled to at least one of the number of wordlines (wordlines 536, 538,...) in a single array (array 22) wherein the strapping lines bypass a plurality of separate portions (536, 538, 540,...) of a single wordline; and a plurality of channels (528, 530) connecting the plurality of strapping layers to the wordline.

Regarding claim 6, Sukegawa teaches that the plurality of strapping lines comprises metal (column 4, lines 33-52).

Regarding claim 7, Sukegawa further teaches the strapping line metal comprises a refractory metal (column 4, lines 33-52).

Regarding claims 19-25, 30-36, 37-41, 45-48 and 49-54, since the claims recite similar limitations as in claims 5-7, they are rejected on the same ground.

Response to Arguments

6. Applicant's arguments filed 03-15-04 have been fully considered but they are not persuasive.

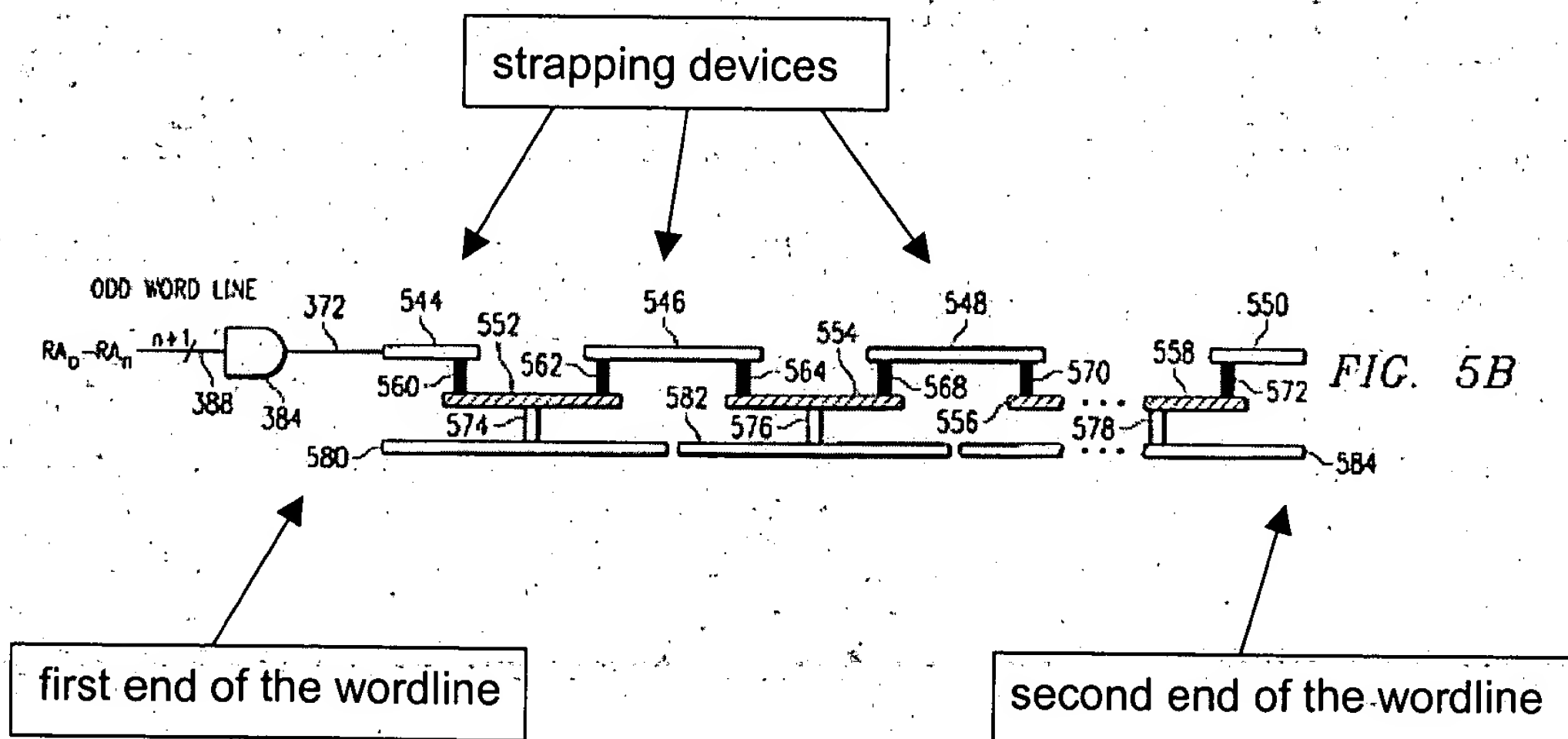
In the Remarks, the Applicant argues that Cowles does not show a strapping line of lower resistance than the wordlines coupled to a single wordline in a single array wherein the strapping line bypasses only a portion in a middle region between a first

and second end of the single wordline, and wherein the strapping line is spaced apart from adjacent conductive structures by a distance greater than a wordline pitch.

As pointed out in the above rejection, Cowles teaches all the limitations of the instant claimed invention. A single array in the instant invention is the same as a memory bank in Cowles: both consisting of memory blocks.

Regarding the arguments to claims 5-7, 19-25, 30-36, 37-41, 45-48, and 49-54, Sukegawa does show a plurality of separate strapping lines (500, 502, 504) of lower resistance than the wordlines (536, 538, 540) coupled to at least one of the number of wordlines in a single array (memory array 22 in figure 3) wherein the strapping lines bypass a plurality of separate portions of a single wordline.

Further, Sukegawa does show a number of strapping devices (500, 502, 504) which bypass only portions of the wordlines in the single array of parallel wordlines (372, 374), wherein at least one portion of a wordline is in a middle region between a first (580 in figure 5B) and second (584) end of the wordline.



Art Unit: 2818

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

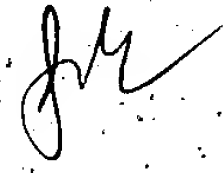
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son L. Mai whose telephone number is 571-272-1786. The examiner can normally be reached on 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2818

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

05-18-04



Son L. Mai
Primary Examiner
Art Unit 2818